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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KOTTER, KIP T

ART UNIT

PAPER NUMBER

3617

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,355	Applicant(s) ONO, KOTARO	
	Examiner KIP T. KOTTER	Art Unit 3617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7 and 9-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2009 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following informalities:

- Reference characters are needed in the drawings to designate “a first juncture”, “a first extension”, “a second juncture”, “a second extension”, “a tire-mounting-side contour of the bead seat”, “a tire-mounting-side contour of the slope wall” and “a solid rim part” as set forth in claim 4.

- The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ratio of cross-sectional area of the tubular rim part to that of the solid rim part being no more than 100% as set forth in claim 4 must be shown or the feature(s) canceled from the claim(s). **No new matter should be entered.**

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no description of "a first juncture between a first extension", "a second juncture between a second extension" and a solid rim part being "defined by the first and second junctures" as set forth in claim 4.

Claim Objections

3. Claim 14 is objected to because of the following informality: The term(s) before "protrusion" needs to be corrected to be readable. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 4-7 and 9-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

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was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 4, there is no support in the original disclosure for a light alloy wheel that includes both a tubular part being comprised of a bead seat, a hump and a slope wall; and a solid rim part that consists of the bead seat, the hump and the slope wall.

Regarding claim 14, there is no support for a protrusion being formed on wall surfaces of the bead seat, the hump, the slope wall and the ornamental wall that define the cavity.

This is a New Matter Rejection.

6. Claims 4-7 and 9-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 4, it is unclear how a ratio of cross-sectional area of the tubular rim part to that of the solid rim part can be no more than 100% when the tubular rim part is defined as comprising all of the structure of the solid rim part (the bead seat, the hump and the slope wall) in addition to an ornamental wall.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4-7 and 9-14, as best understood by Examiner in light of the section 112 issues, are rejected under 35 U.S.C. 103(a) as being unpatentable over Baumgartner (U.S. Patent No. 6,783,190 B1).

Baumgartner, in the embodiment of Fig. 5, discloses a light alloy wheel comprising an outer rim having a tubular rim part, the tubular rim part comprising: a bead seat (unlabeled portion of **31**), a hump (unlabeled portion of **31**), a slope wall (unlabeled portion of **31**) and an ornamental wall (unlabeled portion of **31**), the ornamental wall being arranged on a side opposite to tire-mounting side of the outer rim as shown in Fig. 5 and bridging from a first juncture between a first extension from a tire-mounting-side contour of the bead seat and an exterior contour of the rim to a second juncture between a second extension from a tire-mounting-side contour of the slope wall and the exterior contour of the rim as shown in Fig. 5; wherein a cavity **41** is defined by the bead seat, the hump, the slope wall and the ornamental wall; a solid rim part that is defined by the first and second junctures and consists of the bead seat, the hump and the slope wall as shown in Fig. 5, wherein the thickness of a portion of the hollow spokes, ornamental wall, the bead seat, the hump or the slope wall is configured with a modified thickness with respect to a thickness of a remainder of the ornamental wall, the bead seat, the hump of the slope wall and the portion is comprised of a flat wall and/or a curved wall so as to increase the first and second geometrical moments of inertia as shown in Fig. 5 and described in lines 52-67 of column 1, lines 18-26 of column 2, and lines 21-33 of column 3; wherein the

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hollow spokes are jointed at joints to the tubular rim part, wherein the tubular rim part has an opening at each of the joints between the hollow spokes and the tubular rim part, so that cavities of the hollow spokes communicate with the cavity in the tubular rim part as shown in Fig. 5 and described in lines 5-9 of column 3 and lines 18-26 of column 3; wherein the ornamental wall is at least partly, convex outwardly as shown in Fig. 5; wherein an inner rim has a tubular rim part that is constructed as in the tubular rim part on the outer rim as shown in Fig. 5; wherein a protrusion is considered to be formed on wall surfaces of the bead seat, the hump, the slope wall and the ornamental wall that define the cavity; and wherein the light alloy wheel is capable of being configured for use on a four-wheel automobile according to the European Tire and Rim Technical Organization standard or Japan Automobile Tire Manufacturers Association standard so that it has a dimension in a wheel-radial direction between the bead seat and a rim well is 17.0 mm or more; an inclination of the slope wall is 20 degrees or more.

Although Baumgartner discloses a wheel that includes a tubular rim part that is formed and shaped to reduce weight and increase bending strength and rigidity as described in lines 52-67 of column 1 and lines 18-27 of column 2, Baumgartner fails to expressly disclose the shape and the thicknesses of the bead seat, the hump, the slope wall and the ornamental wall of the tubular rim part being in a range of 2.3 mm to 4 mm so that a ratio of cross-sectional area of the tubular rim part to that of the solid rim part is no more than 100% and a first geometrical moment of inertia of the tubular rim part, about an axis that is parallel to the wheel axis and extends through centroid of a cross section of the tubular rim part, is no less than geometrical moment of inertia of a solid rim part, about an axis that is parallel to the axis of the wheel and extends through centroid of a cross section the solid rim part; and a second geometrical moment

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of inertia of the tubular rim part, about an axis that is vertical to the axis of the wheel and extends through centroid of a cross section of the tubular rim part, is no less than the geometrical moment of inertia of the solid rim part, about an axis that is vertical to the axis of the wheel and extends through centroid of a cross section of the solid rim part.

It would have been obvious to one having ordinary skill in the art, as a mechanical expedient, to have modified the shaping and wall thicknesses of the tubular rim part of Baumgartner so that its cross-sectional area is less than the cross-sectional area of a solid rim part (assuming the solid rim part is on a different wheel) and less than 371.5 mm^2 based upon the intended use of the wheel, loading, materials used, and manufacturing process used, to achieve a desired strength-to-weight ratio and to provide predictable results for decreasing the weight of the wheel.

Further, it would have been obvious to one having ordinary skill in the art to have modified the shaping and wall thicknesses of the bead seat, the hump, the slope wall and the ornamental wall of the tubular rim part of Baumgartner to be in a range of 2.3 mm to 4 mm, the first geometrical moment of inertia of the tubular rim part to be more than $38,268.0 \text{ mm}^4$, and the second geometrical moment of inertia of the tubular rim part to be more than $14,054.8 \text{ mm}^4$ as a matter of routine optimization on the part of a person of ordinary skill in the art so that its two-dimensional geometrical moment of inertia are greater than the two-dimensional geometrical moment of inertia of the solid rim part to provide predictable results for increasing the strength and rigidity of the wheel.

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Regarding claims 10 and 13, Baumgartner fails to expressly disclose at around joints augmentation and/or trim-wise rounding is made on inner faces of the hollow spokes and/or the tubular rim part.

Nonetheless, to have modified Baumgartner by rounding the inner faces of the hollow spokes and/or tubular rim part at around the joints augmentation would have been obvious to one having ordinary skill in the art to provide predictable results for preventing stress concentrations.

Response to Arguments

9. Applicant's arguments filed March 17, 2009 have been fully considered but they are not persuasive.

In response to Applicant's traversal of "the rejection for failing to proffer sufficient evidence to support factual assertions upon which the finding of obviousness is based", note to adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating *why* the noticed fact is not considered to be common knowledge or well-known in the art (emphasis added). See 37 CFR 1.111(b). In the instant case, Applicant asserts that "it is not common knowledge that moment inertia ratios effect "rigidity", "bending strength" and "impact behavior"..." and that "it is not common knowledge that the ratio of cross-sectional area decreases the weight of the wheel...". Applicant's sole reasoning for why these assertions are not considered well-known in the art appears to be based on the theory that if Baumgartner does not explicitly teach these limitations, these limitations cannot be common knowledge to one of ordinary skill in the art (see Page 13 of the Amendment).

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With respect to Applicant's assertion that "it is not common knowledge that moment inertia ratios effect "rigidity", "bending strength" and "impact behavior"...", the Examiner respectfully disagrees. The second moment of area or inertia is defined as the "property of a shape that is used to predict its resistance to bending and deflection" (see The Language of Physics - Dictionary and Research Guide, definition of "Second moment of area"; newly cited). In other words, the second moment of inertia of a shape directly affects its rigidity, resistance to bending or bending strength, and impact behavior or resistance to deflection. A shape with a higher second moment of inertia would have better rigidity, bending strength and impact behavior. Further, it is readily apparent and obvious to one of ordinary skill in the art that Baumgartner implicitly teaches optimizing the shape of the tubular rim part to achieve a desired second moment of inertia. Specifically, Baumgartner teaches "[the] geometrical configuration of the profile segments can be selected in such a manner that optimal results can be achieved in relation to the bending strength that is being striven for" (lines 18-21 of column 2 of Baumgartner).

With respect to Applicant's assertion that "it is not common knowledge that the ratio of cross-sectional area decreases the weight of the wheel...", the Examiner respectfully disagrees. Baumgartner teaches forming hollow chambers **41** in the external horn of the rim to reduce the weight (lines 31-36 of column 1 and lines 58-60 of column 1). Although Baumgartner does not expressly state that the cross-sectional area is decreased, it is readily apparent and obvious to one of ordinary skill in the art that forming hollow chambers in a rim to decrease its weight would also decrease its cross-sectional area as compared to the same rim without the hollow chambers.

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Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIP T. KOTTER whose telephone number is (571)272-7953. The examiner can normally be reached on 9:00-4:00pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on (571)272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. Joseph Morano/
Supervisory Patent Examiner, Art Unit 3617

/KIP T KOTTER/
Examiner, Art Unit 3617